All Clear for Takeoff:
Evidence from Airports on the Effects of Infrastructure Privatization

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Outline

Motivation: Privatization

▶ Infrastructure binds together the modern economy
  ▶ Seaports, airports, roads, bridges, railroads, water, internet cables...

▶ Trend over the past 50 years towards private models
▶ Why privatize?
  ▶ Political catering at gov't-owned firms
    $\rightarrow$ Excessive employment, poor investment choices
    Shleifer & Vishny (1994); Boycko, Shleifer & Vishny (1996)
  ▶ Managerial incentives: Low-powered incentives to max profits
    $\rightarrow$ Low efficiency
    Vickers & Yarrow (1988)
  ▶ Access private capital

▶ Existing work: Focused on post-communist transitions
  ▶ Finds strong positive effects of privatization
    Barberis et al. (1996); Frydman et al. (1997); Brown et al. (2006)

Motivation: Privatization of Infrastructure

▶ Infrastructure raises questions about optimal ownership
  ▶ Public good dimensions (social objectives)
  ▶ Prone to monopolization
  ▶ Distinct forms of private firms:
    ▶ Foreign vs. domestic
    ▶ Partial gov't ownership

▶ We study airports **globally** and in **modern** era
  ▶ Crucial asset for strategic and economic reasons
  ▶ Gateway to city and country

What We Do

- **RQ: Do changes in airport ownership lead to changes in performance?**

- Consider 3 ownership types over 4 decades:
  - Public (government)
  - Non-PE private
    - Partially Govt-Owned
    - Domestic
    - Foreign
  - Private Equity (PE – investor-owned infrastructure funds)

- Observe privatization & post-privatization transactions

- Rich array of performance and financial outcomes
- Examine whether improvements reflect
  - Targeting: Acquirer good at selecting assets on positive trajectory
  - Operational changes post-acquisition

Key Findings

▶ Contrary to much of existing literature, do not find privatization in general causally improves performance

▶ **PE appears to have positive causal effects**
   ▶ Whether acquire from gov't or non-PE private
▶ Foreign private firms may also improve performance
   ▶ But mostly appears to reflect targeting, not operational changes or investment

▶ Evidence broadly consistent with incentive and governance view
   Vickers and Yarrow (1988)
   ▶ In modern airports, gov't not obviously inferior to private ownership
   ▶ But PE adds value: High-powered incentives & access to capital

Private Equity and Social Goods

Do high-powered profit-maximizing incentives always work well when product traditionally publicly or non-profit provided?

- ▶ Appears to work well for airports in sense that passengers benefit

- ▶ Contrasts with my other work in settings that rely on subsidy, trust
  - ▶ For-profit colleges Eaton et al. (2020)
  - ▶ Nursing homes Gupta et al. (2021)
  - ▶ Newspapers Ewens et al. (2022)

- ▶ Why? **Depends on incentive alignment**
  - ▶ How sophisticated is the customer?
  - ▶ Does gov't subsidy separate revenue from consumer?
  - ▶ Can gov't monitor effectively?
  - ▶ Does social dimension of product rely on implicit contracts?

Outline

Airports

- ▶ Like other infrastructure
    - ▶ Large
    - ▶ Long-term
    - ▶ Provide an essential service
    - ▶ Face little competition and high barriers to entry
- ▶ Unlike other infrastructure: Revenue volatile, linked to business cycle (depends on passenger and freight transport)
- ▶ Useful setting for international analysis:
    - ▶ Share common business model
        - ▶ Sell to passengers in terminals
        - ▶ Charge airlines for using terminals and runways
    - ▶ Common global standards that enable aggregate performance analysis

Privatized Airports (As of 1984)

Domestic Private ◇
Foreign Private ✕

Privatized Airports (As of 2019)

Domestic Private	◇
Foreign Private	✕
Partially Gov't Owned Priva..	△
PE	○
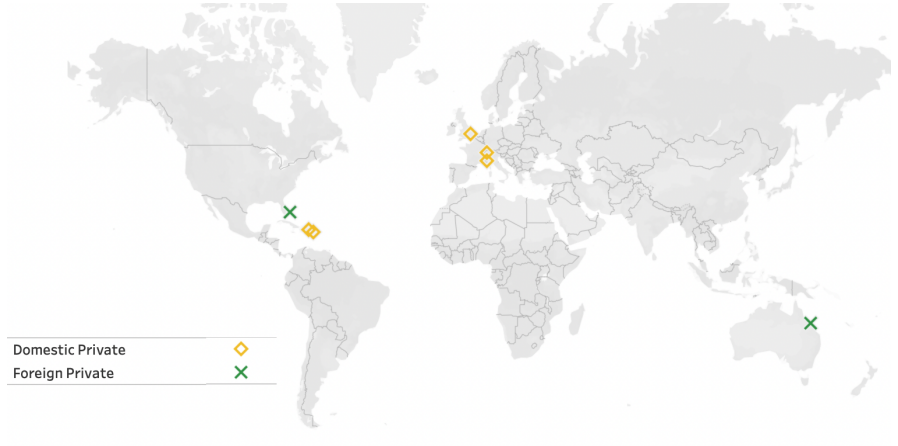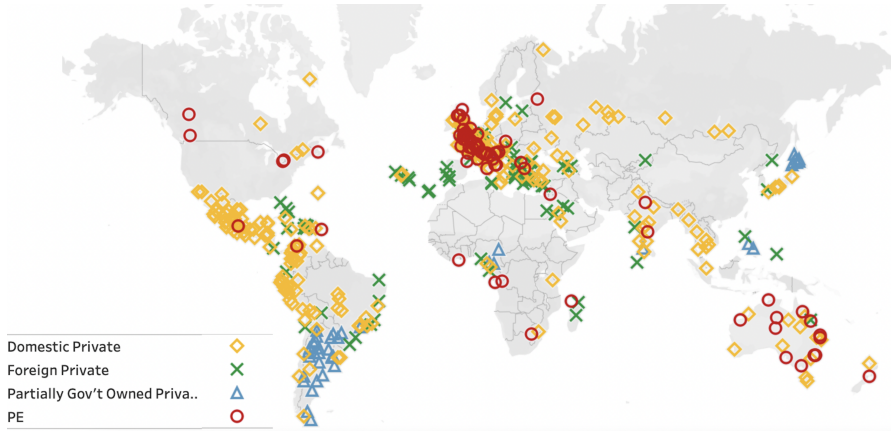
▸ Why are US and China Missing

Why Consider Infrastructure Funds (PE)?

- ▶ Now major asset class within private capital markets
  - ▶ Invested $388 billion 2015-2019
  - ▶ $288 billion dry powder in 2021, up from $69 billion in 2011

- ▶ Differs from other sectors where PE studied (retail, manufacturing, healthcare):
  - ▶ Longer holding periods, intensive government monitoring

- ▶ Open question whether PE creates value in infrastructure

Outline

Number of Airports by Ownership Type

Y-axis: Number of Airports (0, 200, 400, 600, 800, 1,000, 1,200, 1,400, 1,600)

X-axis: 1987, 1989, 1991, 1993, 1995, 1997, 1999, 2001, 2003, 2005, 2007, 2009, 2011, 2013, 2015, 2017

Legend: Private, Public
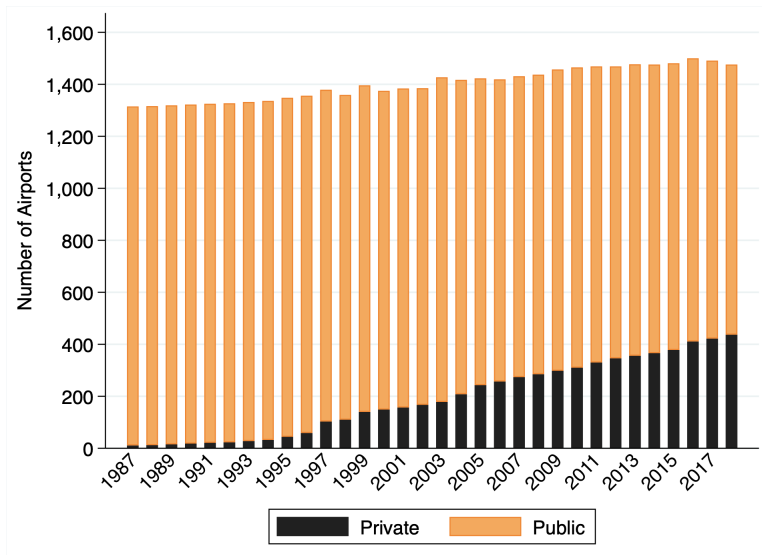
Number of Private Airports by Ownership Type
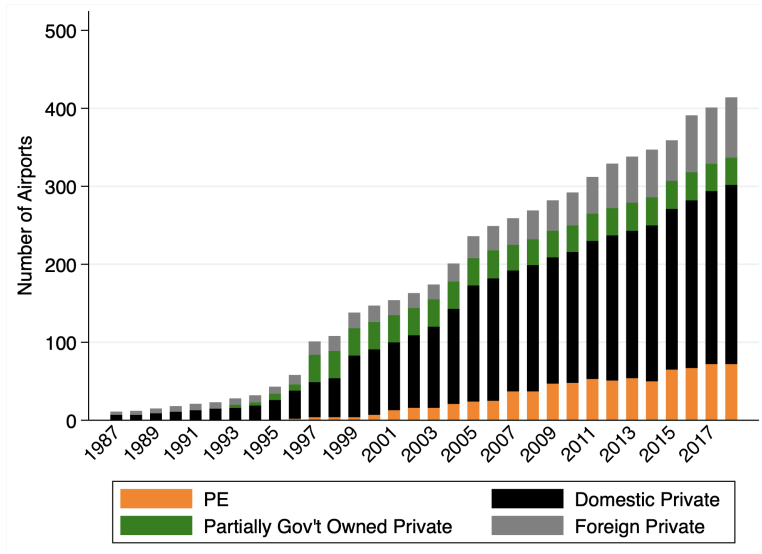
▶ 102 airports ever PE-owned; account for 10-12% of passengers globally

Outline

Estimation Strategy

▶ Problem: Airports are not randomly targeted for ownership changes

1. Look at average changes: Within airport and controlling for year, do we see performance changes after ownership transitions?

2. Look over time around transition: Was airport already on track to changes?
   If no pre-trend $\rightarrow$ Some causality (within treated pop)
   If pre-trend $\rightarrow$ Suggests acquirer good at selection

Key Efficiency Measure: Passengers per Flight

Dependent Variable:	Passengers per Flight	
	(1)	(2)
𝟙(PE)	12.26***	
	(2.67)	
𝟙(Foreign Private)	0.94	
	(3.07)	
𝟙(Domestic Private)	0.77	
	(2.21)	
𝟙(Partially Gov't Owned Private)	-0.18	
	(4.35)	
𝟙(Privatization by PE)		17.91***
		(5.90)
𝟙(Privatization by Non-PE)		1.26
		(1.55)
𝟙(Post-Priv Non-PE to PE)		9.79***
		(3.01)
𝟙(Post-Priv PE to Non-PE)		2.08
		(6.96)
Observations	30308	30308
Airport FE	Yes	Yes
Year FE	Yes	Yes
Controls	Yes	Yes
R^2	0.89	0.89
Y-Mean	96.92	96.92
Pr > F Row 1 = Row 2	0	.01
Pr > F Row 3 = Row 4	.84	.31

▶ Column 1: Relative to gov't ownership...
  ▶ PE → ↑ passengers per flight by about 13% (efficiency)
  ▶ No effects for other private ownership types

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Dependent Variable:	Passengers per Flight	
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▶ Column 2: PE $\rightarrow$ ↑ passengers per flight by 18% in privatization, 10% when acquire from non-PE

Does PE Effect Reflect Targeting?
Event Study for Passengers Per Flight

PE
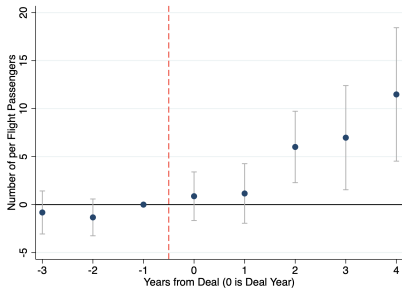
Foreign Private
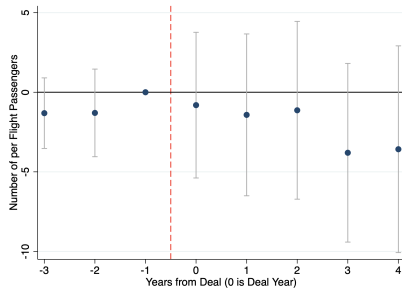
Number of Passengers and Flights

▶ PE & foreign private → ↑ Total passengers, # flights
  ▶ No effects for domestic private or partial gov't private

PE: No pre-trends
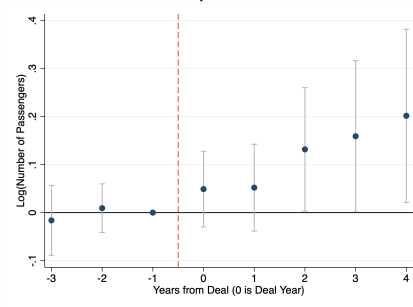
Foreign Private: Targeting
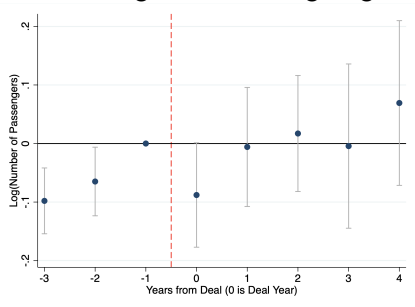
▶ Number of Flights

Routes and Airlines

▶ PE & foreign private → ↑ # routes (especially int'l for PE), # airlines (especially low-cost carriers for PE)

PE: No pre-trends
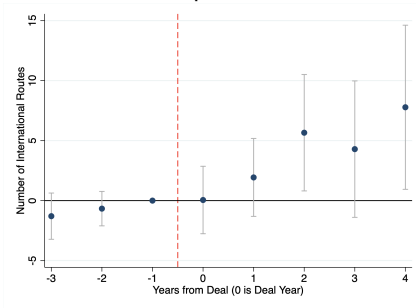
Foreign Private: Targeting
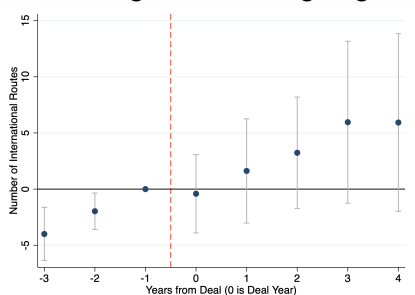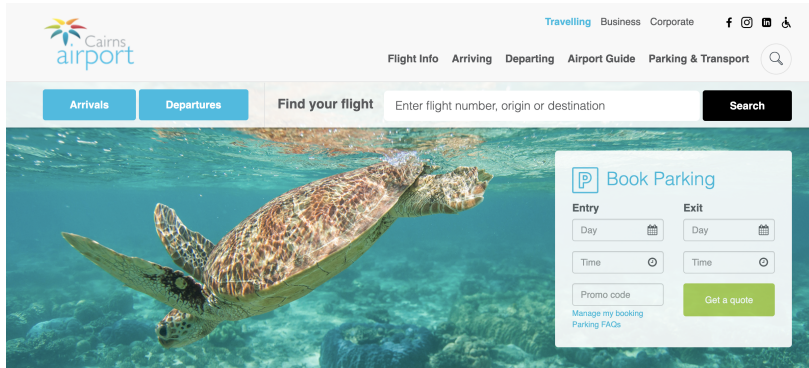
▶ Table ▶ Airlines and LCCs Event Studies

Example: JP Morgan Infrastructure Fund Acquires Cairns, Australia Airport (2008)

▶ First thing they did: Add nonstop flights to major Asian cities →
Increases tourism to Great Barrier Reef

PE Improves Passenger Experience

▶ In privatization and post-privatization acquisitions:
  - ▶ PE → ↓ Flight cancellation rates
  - ▶ PE → ↑ Chances of winning award
    (ACI's ASQ Awards, using passenger surveys at > 400 airports)

▶ Other privatization types have no effects on these outcomes

▶ Table   ▶ Event Studies

Financials

▶ In privatization and post-privatization acquisitions:
  ▶ PE $\to$ ↑ Operational net income
    ▶ Driven by increases in both aeronautical & non-aeronautical revenue
    ▶ Higher expenditure, no decline in employment per passenger

  ▶ Foreign private $\to$ ↑ Net income, revenue
    ▶ But see decline in expenditure and employment per passenger

▶ Table   ▶ Event Studies

Outline

Could CapEx Explain Higher Volume?

- ▶ PE may invest in expanded physical capacity
    - ▶ More terminal space for more gates, stores, passenger throughput
    - ▶ New runways
- ▶ Measure satellite images at multiple years around acquisitions

Adelaide Airport, Acquired by IFM Investors & Whitehelm Capital in 2002
Before PE (t-1) After PE (t+3)
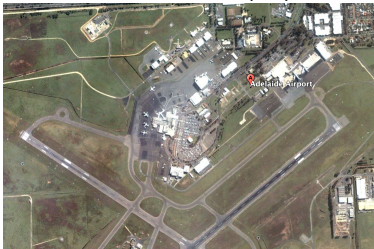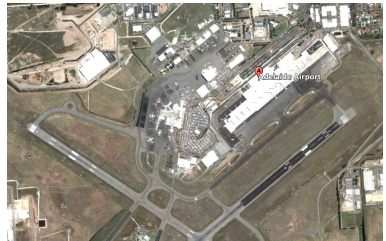
- ▶ **Find PE alone increases terminal size (by 17%)** ▸ Table

How to increase passengers per flight: Bigger Aircraft

Event Studies: Share of Jets (vs. Small and Regional Aircraft)

PE
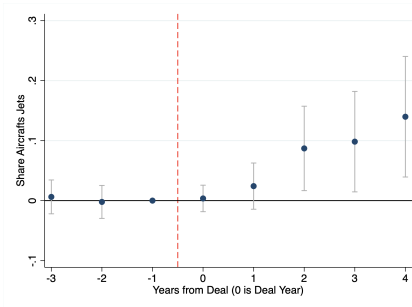
Foreign Private
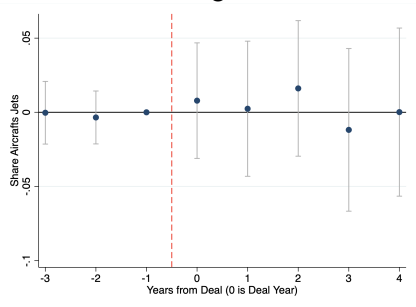
▸ Table

What makes PE Work?
Variation in Local Institutions Shed Light

▶ High corruption countries drive poor non-PE performance, but have little relationship to PE performance

▶ Breach pre-existing implicit or explicit contracts
   ▶ PE effects ↑↑ when airport has state-owned flag carrier ▸ Results
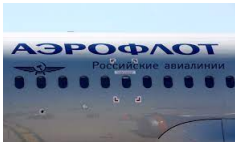
▶ Ownership vs. Control: PE effects ↑ for sales vs. concessions (<30 yrs) ▸ Results

▶ Competition: PE effects ↑ when another airport nearby ▸ Results
   ▶ Also: No effects on competing airport → Effects reflect growing market, not market stealing ▸ Results

Drill down on Selection Story

► So far dynamics suggest causality for PE
  ► But does not fully rule out important role for selection
  ► And if PE targets particular airport type, not comparable with other airports

► Approach: See if there is still differential effect of PE even when we know non-PE private firms also sought to acquire airport
  ► Restrict analysis to airports for which PE & non-PE finalists in auction with >2 bidders
  ► **PE has significant effects (relative to all non-PE private) in these auctions**
    ▸ Stats ▸ Results

Outline

Contribution: Importance of ownership type for infrastructure assets in privatization

▶ Surprising: Weak effects for non-PE private firms
  ▶ May reflect essential, politically salient nature of airports
    → Decent performance under gov't ownership
  ▶ And relatively low profit incentives or private benefits at gov't-connected and domestic private firms

▶ PE ownership leads to higher volume, quality, efficiency. Why?
  ▶ Greater independence
  ▶ Higher-powered incentives (including among new managers)
    Gompers, Kaplan, and Mukharlyamov (2016)
  ▶ Capital to invest in capacity, tech
  ▶ Knowledge of global best practices

Helps to Reconcile Findings in Other Sectors

▶ Positive PE effects on firm performance and productivity
Davis et al. (2014), Bernstein and Sheen (2016), Fracassi et al. (2022)

  ▶ Grocery stores, fast food restaurants, manufacturing

▶ My work: Detrimental effects of PE for customers in for-profit colleges, nursing homes, newspapers
Eaton et al. (2020), Gupta et al. (2021), Ewens et al. (2022)

▶ Effects may depend on degrees of:
  ▶ Customer sophistication $\rightarrow$ High (airlines, travelers)
  ▶ Product quality transparency (i.e. information asymmetry) $\rightarrow$ High
  ▶ Holding period $\rightarrow$ Long (mean 11 yrs, relative to 3-5 in other sectors)
  ▶ Competition $\rightarrow$ Low
  ▶ Government subsidy $\rightarrow$ Fully contracted
  ▶ Regulator capacity $\rightarrow$ Motivated, empowered

▶ These factors may bring out the best of PE, aligning incentives with those of passengers

Outline

Appendix

APPENDIX

Event Studies: International Traffic

Passengers per Flight
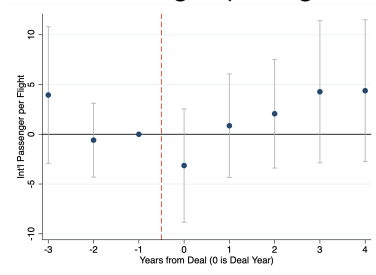
Passengers
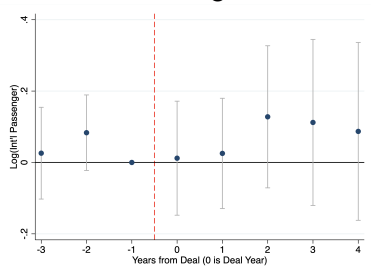
Flights
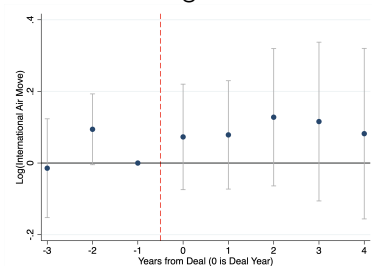
Event Studies: Number of Flights

PE
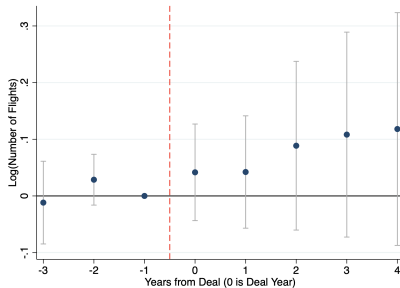
Foreign Private
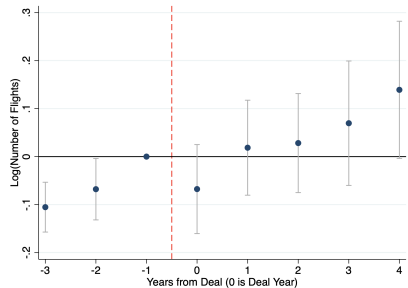
▸ Back

Event Studies on the Effect of PE Ownership: Fees Charged to Airlines–International
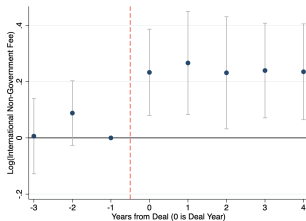
(a) Log(Int'l Fee)
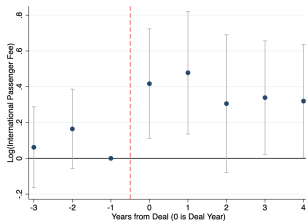
(b) Log(Int'l Passenger Fee)
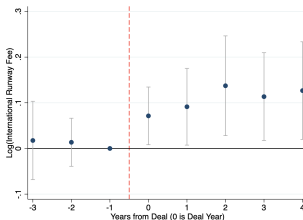
(c) Log(Int'l Runway Fee)

Outcomes

► Airport price regulation (Gillen)

► Local government quality and business climate (Heritage)

► Airport traffic (ICAO)

► Airlines and routes served (OAG)

► Airport fees (RDC Aviation)

► Airport on-time performance (OAG)

► Airport ASQ Passenger Satisfaction Awards (ACI World)

► Airport financials (ATRS and hand-collected)

Ownership and Control Statistics about Airport Acquisitions

Concessions

	Number of Transactions	Percent Control Stake					Duration (Years)	
	N	Mean	Median	SD	Min	Max	Mean	Median
Privatization								
Total	186	94.2	100	15.37	34	100	23.04	25
Govt to non-PE Private	178	96.8	100	11.52	34	100	23.1	25
Govt to PE	8	55.73	45.26	14.05	45	80	21	15
Post-Privatization								
Non-PE Private to PE	36	85.21	100	25.72	14	100	17.13	17
PE to non-PE Private	11	99.24	100	1.24	97.26	100	12.75	15
PE to PE	3	65.36	63	15.31	49	80	20.82	23

Sales

	Number of Transactions			Percent Ownership Stake					Duration if Lease(Years)	
	Total	Outright Sales	Long-Term Leases	Mean	Median	SD	Min	Max	Mean	Median
Privatization										
Total	251	129	122	86.37	100	18.98	30	100	51.1	50
Govt to non-PE Private	223	110	113	88.64	100	17.43	30	100	50.82	50
Govt to PE	28	19	9	71.88	66	22.09	36	100	55.11	45
Post-Privatization										
Non-PE Private to PE	35	28	7	72.06	68	25.92	10	100	59.14	46
PE to non-PE Private	7	7	0	67.85	51	32.04	28	100	NA	NA
PE to PE	8	8	0	69.2	66	22.47	45	100	NA	NA

▶ Back

Capacity Expansion: Larger Planes and Larger Terminals

Dependent Variable:	Share Aircraft Type		Capex	
	Jets	Regional/Small	Log(Terminal Size)	Number of Runways
	(1)	(2)	(3)	(4)
1(Privatization by PE)	0.14**	-0.14**	0.08*	0.13*
	(0.06)	(0.06)	(0.04)	(0.08)
1(Privatization by Non-PE)	0.00	-0.00	0.04*	-0.01
	(0.02)	(0.02)	(0.02)	(0.01)
1(Post-Priv Non-PE to PE)	0.09***	-0.09***	0.19**	-0.03
	(0.02)	(0.02)	(0.09)	(0.02)
1(Post-Priv PE to Non-PE)	0.06*	-0.06*	0.04	-0.05
	(0.03)	(0.03)	(0.07)	(0.04)
Observations	40357	40357	4264	4264
Airport FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
R^2	0.87	0.87	0.97	0.96
Y-Mean	0.41	0.59	9.16	1.30
Pr > F Priv PE=Priv Non-PE	.04	.04	.42	.08
Pr > F Non-PE to PE=PE to Non-PE	.53	.53	.2	.59

Price Adjustment: Fees Charged to Airlines and Regulation

Dependent Variable:	Log(Total Fee)		Log(Passenger Fee)		Log(Runway Fee)		
	International	Domestic	International	Domestic	International	Domestic	No Regulation
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1(Privatization by PE)	-0.02**	-0.05***	-0.06***	-0.06***	0.13***	0.18***	0.14*
	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)	(0.07)
1(Privatization by Non-PE)	0.28***	0.31***	0.55***	0.49***	0.05	0.11***	-0.05
	(0.08)	(0.08)	(0.15)	(0.11)	(0.04)	(0.04)	(0.06)
1(Post-Priv Non-PE to PE)	0.17**	0.18**	0.54***	0.43*	0.04	0.06	0.28**
	(0.07)	(0.08)	(0.27)	(0.22)	(0.05)	(0.05)	(0.11)
1(Post-Priv PE to Non-PE)	0.03	0.05	-0.03	0.04	0.07**	0.09*	
	(0.07)	(0.05)	(0.09)	(0.06)	(0.03)	(0.05)	
Observations	9125	9123	9125	9125	9125	9115	1514
Airport FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.95	0.96	0.97	0.97	0.98	0.98	0.72
Y-Mean	8.82	6.23	8.01	5.64	7.54	4.55	0.16
Pr > F Priv PE=Priv Non-PE	0	0	0	0	.03	.05	.04
Pr > F Non-PE to PE=PE to Non-PE	.19	.18	.05	.1	.59	.69	

▸ Back

Key Outcomes using a Sample of Airports where both PE and non-PE Firms Bid

<div align="center">Panel B: Regression Results in Sample of Airports where both PE and non-PE Firms Bid</div>

Dependent Variable:	Passengers per Flight	Log(Number of Passengers)	Log(Number of Flights)	Log(Number of Routes)	Number of Airlines	Airline HHI	Log(Int'l Fee)	Log(Domestic Fee)	Log(Op. Net Income)	Log(OpEx per 1000 psg)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
𝟙(Privatization by PE)	17.10*	0.77***	0.66***	0.57***	1.87	466.02	-0.02*	-0.02	0.96***	0.14
	(8.90)	(0.26)	(0.23)	(0.19)	(1.47)	(379.41)	(0.01)	(0.01)	(0.23)	(0.19)
𝟙(Privatization by Non-PE)	-4.45	0.13*	0.20**	0.11	5.00***	-399.23	0.16***	0.05	0.28	-0.19
	(5.11)	(0.07)	(0.09)	(0.09)	(1.67)	(424.47)	(0.02)	(0.06)	(0.23)	(0.20)
𝟙(Post-Priv Non-PE to PE)	12.47***	0.20**	0.13	0.18**	0.65	263.36	0.16	0.08	0.25***	-0.04
	(2.76)	(0.09)	(0.11)	(0.09)	(1.62)	(399.12)	(0.15)	(0.12)	(0.07)	(0.05)
𝟙(Post-Priv PE to Non-PE)	2.01	0.20	0.13	0.13	-2.00***	552.25***	0.22***	0.17***	-0.06	-0.60***
	(4.49)	(0.13)	(0.12)	(0.10)	(0.74)	(198.49)	(0.01)	(0.02)	(0.17)	(0.10)
Observations	35041	35041	35041	35029	35041	35041	7427	7425	2170	2220
Airport FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.91	0.96	0.94	0.94	0.93	0.78	0.96	0.96	0.92	0.90
Y-Mean	85.97	12.32	8.13	2.21	7.99	5,696.54	8.74	6.24	17.95	9.41
Pr > F Priv Non-PE=Priv PE	.04	.02	.06	.03	.16	.13	0	.24	.02	.19
Pr > F Non-PE to PE=PE to Non-PE	.05	1	.97	.73	.14	.51	.71	.47	.03	0

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Placebo Tests, Airport Performance / Quality Measure

Dep Var:	Panel A: Airport Performance/Quality Measure					
	Performance		On-Time Performance		Traffic	
	Psg Per Flight	Log(Number of Routes)	Cancellation Rate	On Time Departures	Log(Number of Passengers)	Log(Number of Flights)
	(1)	(2)	(3)	(4)	(5)	(6)
$\mathbb{1}$(Non-PE Private)	-0.044	0.043*	-0.875	7.339***	0.103***	0.102***
	(1.476)	(0.025)	(0.564)	(1.781)	(0.033)	(0.031)
$\mathbb{1}$(PE)	2.080	0.104*	1.106***	1.595	0.127	0.108
	(3.286)	(0.059)	(0.250)	(1.983)	(0.082)	(0.068)
Observations	38389	38389	3004	3004	38389	38389
Airport FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Match Cohort-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Y-Mean	88.202	2.257	2.120	77.759	12.387	8.162
R^2	0.913	0.937	0.645	0.821	0.960	0.937

Placebo Tests, Charges and Financials

Dep Var:	Panel B: Charges and Financials					
	Airport Charges		Financials			
	Int'l Fee	Dom Fee	Log(Aero Rev)	Log(Non-Aero Rev)	Log(Op. Exp.)	Log(Num of Employees per 1000 psg)
	(1)	(2)	(3)	(4)	(5)	(6)
1(Non-PE Private)	-0.013	-0.079*	-0.524	0.028	0.091	-0.191**
	(0.036)	(0.046)	(0.518)	(0.074)	(0.196)	(0.075)
1(PE)	-0.041	-0.019	-0.145	-0.045	-0.805**	-0.039
	(0.047)	(0.043)	(0.101)	(0.071)	(0.319)	(0.125)
Observations	7908	7906	2280	2280	2280	2280
Airport FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Match Cohort-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Y-Mean	8.757	6.239	18.320	18.234	9.333	0.185
R^2	0.956	0.965	0.853	0.802	0.877	0.501

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	Public				Non PE Private				PE			
	N	Mean	Median	SD	N	Mean	Median	SD	N	Mean	Median	SD
Country-Level Economic Characteristics:												
GDP per Capita (Th)	36,190	$ 25.4	$ 24.0	$ 21.7	3,272	$ 17.3	$ 10.0	$ 16.3	524	$ 34.0	$ 40.0	$ 17.4
Trade Volume (B)	36,190	$ 1,039	$ 428	$ 1,295	3,272	$ 427	$ 208	$ 495	524	$ 614	$ 620	$ 440
Country-Level Governance Characteristics:												
Corruption	33,830	57.8	69.0	21.6	3,202	47.8	37.0	19.5	518	66.4	74.0	19.2
Ease of Doing Business	34,079	70.9	76.3	13.8	3,212	66.8	66.6	10.2	518	76.0	79.5	8.6
Airport-Level Traffic:												
Share Passengers Intl	37,372	0.19	0.01	0.30	3,272	0.38	0.29	0.35	524	0.43	0.38	0.35
Total Passenger per Flight	36,190	85.7	77.0	53.8	3,272	118	120	41.4	524	127	133	35.8
Int'l Passenger per Flight	19,032	130	138	60.8	2,841	137	141	51.0	457	150	154	50.2
Dom Passenger per Flight	35,603	79.3	69.0	51.2	3,250	107	108	49.5	520	117	117	46.9
Total Passengers (M)	36,190	1.6	0.00	5.2	3,272	2.6	1.00	5.1	524	3.4	2.0	4.9
Int'l Passengers (M)	19,032	1.0	0.00	3.5	2,841	1.6	0.00	3.9	457	2.4	1.00	4.3
Dom Passengers (M)	35,603	1.1	0.00	3.9	3,250	1.1	0.00	2.3	520	1.3	1.00	1.9
Total Flights (Th)	36,190	13.6	3.0	37.2	3,272	19.3	7.0	32.0	524	25.7	15.0	32.3
Int'l Flights (Th)	36,190	0.00	0.00	0.00	3,272	0.00	0.00	0.00	524	0.00	0.00	0.00
Dom Flights (Th)	36,190	0.00	0.00	0.00	3,272	0.00	0.00	0.00	524	0.00	0.00	0.00
Total Freight Tons per Flight	26,778	3.3	2.0	4.5	2,969	4.4	3.0	4.6	510	6.0	3.0	8.1
Int'l Freight Tons per Flight	15,030	2,038	618	4,043	2,438	2,694	1,365	3,938	427	3,922	1,832	6,456
Dom Freight Tons per Flight	24,743	2,335	1,114	3,462	2,662	2,427	1,224	3,135	470	2,982	1,450	4,481
Total Freight Tons (Th)	26,778	77.4	6.0	280	2,969	107	22.0	228	510	190	31.0	447
Int'l Freight Tons (Th)	15,030	59.8	4.0	220	2,438	76.6	12.0	163	427	158	19.0	407
Dom Freight Tons (Th)	24,743	47.4	4.0	193	2,662	49.2	9.0	121	470	62.8	16.0	151
Airport-Level Quality Measure:												
Number of Routes	36,190	18.2	6.0	32.9	3,272	35.7	17.0	47.3	524	49.7	30.0	52.7
Number of Int'l Routes	19,031	17.1	5.0	30.5	2,841	29.6	12.0	44.7	457	43.9	23.0	53.0
Number of Dom Routes	35,599	9.3	4.0	17.3	3,250	10.0	6.0	11.5	520	11.5	9.0	9.3
𝟙(Award)	36,190	0.02	0.00	0.12	3,272	0.04	0.00	0.21	524	0.07	0.00	0.26
Number of Accidents per 1000 Flights	36,190	0.01	0.00	0.13	3,272	0.00	0.00	0.06	524	0.00	0.00	0.00
Number of Fatalities per 1000 Flights	36,190	0.08	0.00	2.8	3,272	0.05	0.00	0.97	524	0.00	0.00	0.04
𝟙(Competing Airports)	37,372	0.36	0.00	0.48	3,272	0.65	1.00	0.48	524	0.68	1.00	0.47
Airport-Level Airline Concentration:												
Number of Airlines	36,190	7.7	3.0	11.9	3,272	15.7	8.0	18.8	524	17.2	11.0	18.6
Number of Low Cost Carriers	36,190	0.86	0.00	2.0	3,272	2.3	1.00	3.1	524	3.2	2.0	3.5
Airline HHI	36,190	5,728	5,063	3,045	3,272	3,881	3,212	2,529	524	3,760	3,132	2,350
Share of Largest Airline	36,190	66.5	63.0	25.9	3,272	51.3	48.0	23.6	524	51.0	47.0	22.1
Share of Jets	36,190	0.39	0.00	0.49	3,272	0.63	1.00	0.48	524	0.73	1.00	0.45
𝟙(State-Owned Flag Carrier)	36,190	0.26	0.00	0.44	3,272	0.35	0.00	0.48	524	0.17	0.00	0.37

	Public				Non PE Private				PE			
	N	Mean	Median	SD	N	Mean	Median	SD	N	Mean	Median	SD
Airport-Level Price Regulation:												
No Regulation	870	0.08	0.00	0.27	387	0.23	0.00	0.42	212	0.34	0.00	0.47
Cost Based	870	0.50	1.00	0.50	387	0.16	0.00	0.36	212	0.02	0.00	0.14
Revenue Cap	870	0.06	0.00	0.24	387	0.11	0.00	0.32	212	0.03	0.00	0.17
Light	870	0.01	0.00	0.08	387	0.31	0.00	0.46	212	0.50	0.00	0.50
Other	870	0.35	0.00	0.48	387	0.37	0.00	1.0	212	0.12	0.00	0.32
Airport-Level Price Charged to Airlines:												
Int'l Fee (Th)	8,491	$ 7.8	$ 6.5	$ 5.3	1,465	$ 11.0	$ 10.4	$ 5.4	339	$ 10.8	$ 9.5	$ 5.9
Dom Fee (Th)	8,491	$ 0.78	$ 0.50	$ 0.77	1,465	$ 0.89	$ 0.70	$ 0.78	339	$ 1.4	$ 1.2	$ 1.1
Int'l Passenger Fee (Th)	8,491	$ 5.2	$ 4.2	$ 4.7	1,465	$ 8.5	$ 8.0	$ 5.0	339	$ 7.8	$ 6.4	$ 4.9
Dom Passenger Fee (Th)	8,491	$ 0.61	$ 0.30	$ 0.70	1,465	$ 0.74	$ 0.60	$ 0.68	339	$ 1.1	$ 0.90	$ 0.91
Int'l Runway Fee (Th)	8,491	$ 2.5	$ 2.0	$ 2.0	1,465	$ 2.5	$ 2.1	$ 1.8	339	$ 2.9	$ 2.0	$ 2.8
Dom Runway Fee (Th)	8,491	$ 0.17	$ 0.12	$ 0.19	1,465	$ 0.15	$ 0.08	$ 0.19	339	$ 0.28	$ 0.18	$ 0.30
Airport-Level Price Financials:												
Total Op. Rev (M)	2,016	$ 316	$ 171	$ 392	363	$ 382	$ 180	$ 455	204	$ 220	$ 101	$ 261
Total Op. Exp. per 1000 psg (Th)	1,982	$ 20.6	$ 11.4	$ 83.6	361	$ 225	$ 20.0	$ 1,011	204	$ 19.8	$ 17.6	$ 13.2
Net Op. Income (M)	1,992	$ 130	$ 65.0	$ 191	359	$ 159	$ 81.0	$ 166	204	$ 101	$ 53.0	$ 118
Total Aero Rev (M)	2,044	$ 162	$ 88.0	$ 197	364	$ 183	$ 90.5	$ 185	204	$ 107	$ 55.0	$ 127
Total Non-Aero Rev (M)	2,017	$ 155	$ 78.0	$ 230	364	$ 199	$ 94.0	$ 298	204	$ 112	$ 51.0	$ 138
Num of Employees per 1000 psg	2,015	50.6	0.00	1,791	369	2,346	0.00	20,540	205	1,346	0.00	19,273
Airport-Level On Time Performance:												
Flight Cancellation Rate (%)	4,193	2.5	1.5	5.1	673	1.6	1.0	2.3	142	1.3	0.93	1.1
On-Time Departure Rate (%)	4,193	78.5	80.7	9.8	673	77.2	78.8	8.4	142	72.8	73.5	10.3

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	Economic		Regulation		Governance		Net Op. Income	
	PE	Non-PE Priv	PE	Non-PE Priv	PE	Non-PE Priv	PE	Non-PE Priv
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log GDP Per Capita	-0.093	-0.125*						
	(0.063)	(0.071)						
Log Trade Volume	0.211**	-0.159**						
	(0.095)	(0.077)						
Passengers per Flight	0.001	0.000						
	(0.003)	(0.004)						
Log Total Passengers	0.296*	-0.065						
	(0.161)	(0.130)						
Share Passengers Intl	1.175	0.339						
	(0.765)	(0.449)						
Log Number of Airlines	-1.167*	0.660**						
	(0.628)	(0.300)						
Log Number of Routes	0.683**	0.127						
	(0.289)	(0.290)						
𝟙(Competing Airports)	-0.039	1.035***						
	(0.146)	(0.305)						
Cost Based			-6.730**	-4.552**				
			(2.881)	(2.094)				
Revenue Cap			-8.271**	-5.290**				
			(3.291)	(2.032)				
Light			14.821*	-1.069				
			(8.642)	(3.480)				
Other			-2.384	-3.632*				
			(2.059)	(2.147)				
Ease of Doing Business					0.034**	0.510***		
					(0.016)	(0.086)		
Corruption					0.006	0.418***		
					(0.004)	(0.055)		
Log Op. Net Income							-0.388	-0.309
							(0.305)	(0.349)
Constant	-4.832**	2.866**	7.118**	5.436**	-2.091*	-45.881***	10.109*	7.425
	(2.100)	(1.413)	(2.924)	(2.056)	(1.100)	(7.872)	(5.481)	(6.351)
Observations	27897	25101	1404	1091	27897	27897	1391	1182
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	No	No	Yes	Yes	Yes	Yes
Outcome Mean	0.419	1.068	0.419	1.068	0.419	1.068	0.419	1.068

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Effect on Traffic at Competing Airports

Dependent Variable:	Log(Number of Passengers)	Log(Number of Flights)
	(1)	(2)
$\mathbb{1}$(Privatization by PE Nearby)	0.09	0.11
	(0.13)	(0.11)
$\mathbb{1}$(Privatization by Non-PE Nearby)	0.15***	0.17***
	(0.03)	(0.03)
$\mathbb{1}$(Post-Priv Non-PE to PE Nearby)	0.07	0.06
	(0.06)	(0.05)
$\mathbb{1}$(Post-Priv PE to Non-PE Nearby)	0.09	-0.07
	(0.11)	(0.14)
Observations	36801	36801
Airport FE	Yes	Yes
Year FE	Yes	Yes
Controls	Yes	Yes
R^2	0.96	0.94
Y-Mean	12.42	8.18
Pr > F Priv PE=Priv Non-PE	.62	.57
Pr > F Non-PE to PE=PE to Non-PE	.88	.38

Private Equity Investor Fund Statistics, Top 5 Firms

Panel A: Top 5 Firms by Number of Airports

	Number of Airports
Ciclad	16
Macquarie	11
Advent International	7
IFM Investors	6
F2i	5

Private Equity Investor Fund Statistics, Fund and Deal

Panel B: Fund and Deal Statistics

	Mean	Median	N
Fund Size	2.71b	1.17b	43
Closed-Ended	85%		20
Deals Exited	37.78%		90
Deals Exited by Year 10	26.67%		90
Years to Exit	8.32	7	34
Years to Exit (with > 10)	10.65	9	48
Fund Region			
EU	41.3%		46
NA	23.91%		46
OC	17.39%		46
AS	6.52%		46
SA	6.52%		46
AF	4.35%		46
Same Region as Airport	76.74%		43

Heterogeneous Effects of Airport Privatization: Ease of Doing Business
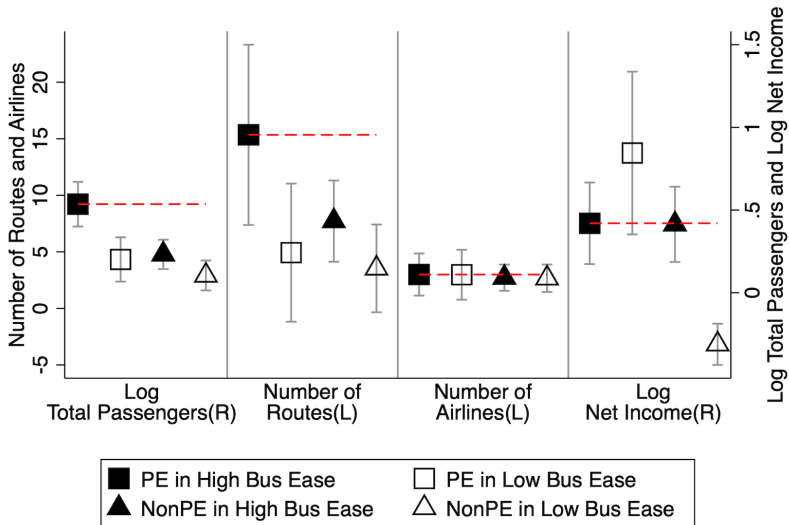
Legend:
- ■ PE in High Bus Ease
- □ PE in Low Bus Ease
- ▲ NonPE in High Bus Ease
- △ NonPE in Low Bus Ease

Airport Privatization by Country and Decade

Country	Before 1990s	1990s	2000s	2010s	2020s	Total
Albania	0	0	1	0	0	1
Argentina	0	28	1	0	0	29
Armenia	0	0	2	0	0	2
Australia	1	14	11	3	0	29
Austria	0	0	1	1	0	2
Bahamas	1	0	1	0	0	2
Belgium	0	0	1	2	0	3
Bermuda	0	0	0	1	0	1
Bolivia	0	3	0	0	0	3
Brazil	0	0	0	18	1	19
Bulgaria	0	0	2	2	1	5
Cambodia	0	3	0	0	0	3
Cameroon	0	3	0	0	0	3
Canada	0	6	1	1	0	8
Chile	0	3	2	0	0	5
Colombia	0	0	3	7	0	10
Congo	0	0	0	3	0	3
Costa Rica	0	0	1	1	0	2
Cote D'Ivoire	0	1	0	0	0	1
Croatia	0	1	0	1	0	2
Cyprus	0	0	2	0	0	2
Czech Republic	0	0	0	1	0	1
Denmark	0	0	4	0	0	4
Dominican Republic	2	1	6	0	0	9
Ecuador	0	0	2	0	0	2
Egypt	0	1	0	0	0	1
Equatorial Guinea	0	0	2	0	0	2
France	0	1	9	23	0	33
Gabon	1	0	0	0	0	1
Georgia	0	0	2	0	0	2
Germany	0	2	3	2	0	7
Greece	0	1	0	14	0	15
Honduras	0	0	3	0	0	3
Hungary	0	0	1	0	0	1
India	0	1	9	1	5	16
Indonesia	0	0	0	1	0	1
Italy	1	4	6	7	0	18
Jamaica	0	0	1	1	0	2
Japan	0	0	0	6	8	14
Jordan	0	0	1	0	0	1
Kazakhstan	0	0	0	0	1	1
Kosovo	0	0	0	1	0	1
Latvia	0	0	0	1	0	1
Macedonia	0	0	2	0	0	2
Madagascar	0	0	0	2	0	2

Airport Privatization by Country and Decade

Country	Before 1990s	1990s	2000s	2010s	2020s	Total
Malaysia	0	0	1	0	0	1
Maldives	0	0	0	1	0	1
Malta	0	0	1	0	0	1
Mexico	0	0	41	1	0	42
Moldova	0	0	0	1	0	1
Myanmar	0	0	0	1	0	1
Netherlands	0	0	1	0	0	1
New Zealand	0	2	0	0	0	2
Nigeria	0	1	0	0	0	1
Norway	0	1	0	0	0	1
Pakistan	0	0	1	0	0	1
Peru	0	0	13	1	0	14
Philippines	0	0	0	3	0	3
Portugal	0	0	2	10	0	12
Puerto Rico	0	0	0	1	0	1
Russia	0	3	0	15	0	18
Saudi Arabia	0	0	0	5	0	5
Serbia	0	0	0	1	0	1
Slovenia	0	0	1	1	0	2
South Africa	0	0	1	1	0	2
Sweden	0	1	0	1	0	2
Switzerland	1	0	1	0	0	2
Tanzania	0	1	0	0	0	1
Thailand	1	1	0	0	0	2
Tunisia	0	0	2	0	0	2
Turkey	0	2	6	0	0	8
UK	7	10	10	2	0	29
US	0	1	0	1	0	2
Ukraine	0	0	1	0	0	1
Uruguay	0	1	1	0	0	2
Total	15	97	163	146	16	437

Airport Ownership Type and Freight Traffic

Dependent Variable:	Freight per Flight			Log(Freight Tons)		
	Total	In'l	Domestic	Total	In'l	Domestic
	(1)	(2)	(3)	(4)	(5)	(6)
$\mathbb{1}$(Privatization by PE)	2.43**	-0.27	2.61*	1.02**	0.13	1.00**
	(1.20)	(0.91)	(1.50)	(0.46)	(0.46)	(0.44)
$\mathbb{1}$(Privatization by Non-PE)	-0.15	-0.76**	-0.12	0.05	0.03	0.03
	(0.20)	(0.33)	(0.22)	(0.09)	(0.10)	(0.12)
$\mathbb{1}$(Post-Priv Non-PE to PE)	1.10	1.50	1.79*	0.16	0.35	0.41
	(1.00)	(1.15)	(0.92)	(0.26)	(0.28)	(0.29)
$\mathbb{1}$(Post-Priv PE to Non-PE)	-0.85	3.44	-4.64**	-0.46	0.28	0.10
	(3.98)	(4.34)	(2.08)	(0.46)	(0.43)	(0.85)
Observations	30917	18440	28664	30917	18440	28664
Airport FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.53	0.52	0.47	0.80	0.84	0.76
Y-Mean	3.43	5.73	3.03	12.46	8.39	8.33
$Pr > F$ Priv PE=Priv Non-PE	.03	.62	.07	.04	.84	.04
$Pr > F$ Non-PE to PE=PE to Non-PE	.63	.66	0	.23	.89	.73

Changes in Terminal Size and Number of Runways around Airport Acquisitions

Panel A: Raw Terminal Size (SQMT) and # of Runways

	Obs.	Passenger Terminal (sqmt)			# of Runways		
		t-1	t+3	t+5	t-1	t+3	t+5
Privatization							
Govt to PE	32	21357	27391	27846	1.43	1.43	1.43
Govt to Non-PE Private	239	13530	15275	16422	1.23	1.24	1.25
Post-Privatization							
Non-PE Private to PE	67	13289	14424	14814	1.40	1.40	1.40
PE to PE	10	22489	25507	25507	1.10	1.20	1.20
PE to Non-PE Private	16	14453	15134	15483	1.19	1.19	1.19

Panel B: Size Weighted Average Percentage Change

	Obs.	Passenger Terminal (sqmt)		# of Runways	
		t-1 −> t+3	t-1 −> t+5	t-1 −> t+3	t-1 −> t+5
Privatization					
Govt to PE	32	28%	30%	2%	2%
Govt to Non-PE Private	239	13%	22%	2%	2%
Post-Privatization					
Non-PE Private to PE	67	19%	22%	2%	2%
PE to PE	10	13%	13%	18%	18%
PE to Non-PE Private	16	5%	7%	0%	0%

Heterogeneous Effect of Airport Privatization by Low vs. High Corruption

Dependent Variable:	Passengers per Flight	Log(Number of Passengers)	Log(Number of Flights)	Log(Number of Routes)	Number of Airlines	Airline HHI	Log(Int'l Fee)	Log(Domestic Fee)	Log(Op. Net Income)	Log(OpEx per 1000 psg)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1(PE Low Corruption)	13.63***	0.36***	0.25***	0.32***	0.80	-99.40	-0.01	0.04	0.20*	-0.13*
	(3.00)	(0.08)	(0.07)	(0.08)	(0.73)	(232.05)	(0.03)	(0.05)	(0.11)	(0.07)
1(PE High Corruption)	7.01*	0.21***	0.19***	0.15	3.69**	-293.62	0.20**	0.23**	0.71***	0.54***
	(3.62)	(0.07)	(0.08)	(0.10)	(1.66)	(242.66)	(0.08)	(0.09)	(0.18)	(0.14)
1(Non-PE Low Corruption)	4.50**	0.28***	0.25***	0.28***	4.30***	496.06***	-0.01	0.07	0.24***	-0.20**
	(2.11)	(0.05)	(0.05)	(0.05)	(0.71)	(140.43)	(0.03)	(0.07)	(0.09)	(0.09)
1(Non-PE High Corruption)	-0.62	0.03	0.07	0.03	1.14***	-75.80	0.09	0.07	-0.27***	-0.31***
	(1.99)	(0.04)	(0.04)	(0.03)	(0.43)	(123.89)	(0.06)	(0.08)	(0.08)	(0.05)
Observations	40357	40357	40357	40343	40357	40357	9125	9123	2613	2613
Airport FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.91	0.96	0.94	0.94	0.93	0.79	0.94	0.96	0.91	0.92
Y-Mean	90.00	12.46	8.21	2.30	8.70	5,474.07	8.80	6.24	17.98	9.53
Pr > F PE Low Corruption=PE High Corruption	.15	.15	.52	.2	.11	.55	.02	.04	.02	0
Pr > F NonPE Low Corruption=NonPE High Corruption	.07	0	0	0	0	.02	.13	.98	0	.31

Dependent Variable:	Passengers per Flight	Log(Number of Passengers)	Log(Number of Flights)	Log(Number of Routes)	Number of Airlines	Airline HHI	Log(Int'l Fee)	Log(Domestic Fee)	Log(Op. Net Income)	Log(OpEx per 1000 psg)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1(PE State-Owned Flag Carrier)	8.96*	0.27***	0.23**	0.13	5.87**	16.80	0.12**	0.34***	0.82***	0.42***
	(4.98)	(0.08)	(0.10)	(0.15)	(2.47)	(301.66)	(0.06)	(0.11)	(0.14)	(0.15)
1(PE No State-Owned Flag Carrier)	11.58***	0.29***	0.21***	0.27***	0.40	-172.61	0.09	0.08	0.14	-0.02
	(2.66)	(0.07)	(0.06)	(0.07)	(0.59)	(202.17)	(0.05)	(0.06)	(0.10)	(0.06)
1(NonPE State-Owned Flag Carrier)	0.82	0.22***	0.24***	0.19***	3.98***	-266.27*	0.05	0.29***	0.33***	-0.34**
	(2.21)	(0.04)	(0.04)	(0.04)	(0.65)	(157.00)	(0.04)	(0.11)	(0.12)	(0.14)
1(NonPE No State-Owned Flag Carrier)	2.95*	0.14***	0.13***	0.16***	2.22***	321.48***	-0.01	-0.04	0.12	-0.03
	(1.76)	(0.04)	(0.04)	(0.04)	(0.50)	(107.62)	(0.03)	(0.04)	(0.14)	(0.08)
Observations	40357	40357	40357	40343	40357	40357	9125	9123	2613	2686
Airport FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.91	0.96	0.94	0.93	0.93	0.79	0.94	0.96	0.91	0.92
Y-Mean	90.00	12.46	8.21	2.30	8.70	5,474.07	8.80	6.24	17.98	9.54
Pr > F PE SOFC =PE No SOFC	.64	.89	.86	.41	.03	.59	.65	.04	0	.01
Pr > F NonPE SOFC =NonPE No SOFC	.4	.09	.01	.46	.02	.74	.22	0	.27	.06

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Heterogeneous Effect of Airport Privatization by Contract Form

Dependent Variable:	Passengers per Flight (1)	Log(Number of Passengers) (2)	Log(Number of Flights) (3)	Log(Number of Routes) (4)	Number of Airlines (5)	Airline HHI (6)	Log(Int'l Fee) (7)	Log(Domestic Fee) (8)	Log(Op. Net Income) (9)
$\mathbb{1}$(PE-Sale)	15.04***	0.38***	0.27***	0.38***	2.20**	-270.19	0.05	0.09	0.29***
	(2.76)	(0.06)	(0.06)	(0.07)	(1.03)	(224.31)	(0.06)	(0.07)	(0.09)
$\mathbb{1}$(PE-Concession)	4.05	0.11	0.11	-0.04	0.31	76.80	0.18***	0.22**	0.00
	(3.85)	(0.09)	(0.09)	(0.08)	(0.86)	(270.94)	(0.07)	(0.10)	(.)
$\mathbb{1}$(NonPE-Sale)	5.49***	0.20***	0.17***	0.19***	2.98***	-485.02***	-0.03	0.05	0.26***
	(1.94)	(0.04)	(0.04)	(0.04)	(0.54)	(120.17)	(0.03)	(0.09)	(0.09)
$\mathbb{1}$(NonPE-Concession)	-2.19	0.13**	0.17***	0.14***	2.66***	-55.17	0.07*	0.10*	-0.33***
	(2.05)	(0.05)	(0.06)	(0.04)	(0.74)	(150.83)	(0.04)	(0.05)	(0.06)
Observations	40357	40357	40357	40343	40357	40357	9125	9123	2613
Airport FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.91	0.96	0.94	0.94	0.93	0.79	0.94	0.96	0.91
Y-Mean	90.00	12.46	8.21	2.30	8.70	5,474.07	8.80	6.24	17.98
Pr > F PE Sale=PE Con	.02	.02	.13	0	.15	.32	.15	.27	0
Pr > F NonPE Sale=NonPE Con	0	.24	.97	.36	.72	.02	.06	.64	0

Competition: Airport Nearby?

presentations/Figures/appendix_t11.

The Effect of Airport Privatization on Volume of Passengers and Traffic of Competing Airports

Dependent Variable:	Log(Number of Passengers)	Log(Number of Flights)
	(1)	(2)
$\mathbb{1}$(Privatization by PE Nearby)	0.09	0.11
	(0.13)	(0.11)
$\mathbb{1}$(Privatization by Non-PE Nearby)	0.15***	0.17***
	(0.03)	(0.03)
$\mathbb{1}$(Post-Priv Non-PE to PE Nearby)	0.07	0.06
	(0.06)	(0.05)
$\mathbb{1}$(Post-Priv PE to Non-PE Nearby)	0.09	-0.07
	(0.11)	(0.14)
Observations	36801	36801
Airport FE	Yes	Yes
Year FE	Yes	Yes
Controls	Yes	Yes
R^2	0.96	0.94
Y-Mean	12.42	8.18
Pr > F Priv PE=Priv Non-PE	.62	.57
Pr > F Non-PE to PE=PE to Non-PE	.88	.38

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Airport Privatization: Ownership vs. Control

Dependent Variable:	Passengers per Flight	Log(Number of Passengers)	Log(Number of Flights)	Log(Number of Routes)	Number of Airlines	Airline HHI	Log(Int'l Fee)	Log(Domestic Fee)	Log(Op. Net Income)	Log(OpEx per 1000 psg)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1(PE)*Ownership Stake	7.74	0.27*	0.23**	0.50***	2.30	-211.87	0.00	0.01	2.45**	1.23
	(6.36)	(0.14)	(0.11)	(0.12)	(1.51)	(441.12)	(0.10)	(0.13)	(1.21)	(0.87)
1(PE)*Control Stake	6.28	0.23*	0.20**	-0.07	0.50	47.65	0.11*	0.17**	-1.72*	-0.95
	(5.65)	(0.13)	(0.10)	(0.10)	(1.00)	(350.76)	(0.06)	(0.07)	(1.02)	(0.73)
1(Non-PE)*Ownership Stake	4.40**	0.21***	0.19***	0.15***	2.84***	-350.01**	-0.00	0.09	0.38*	-0.14
	(1.96)	(0.04)	(0.04)	(0.04)	(0.57)	(141.89)	(0.05)	(0.10)	(0.21)	(0.18)
1(Non-PE)*Control Stake	-2.70	0.12**	0.16***	0.10**	2.63***	54.95	0.05	0.08	-0.38***	-0.22**
	(2.06)	(0.06)	(0.06)	(0.04)	(0.79)	(149.94)	(0.05)	(0.06)	(0.09)	(0.11)
Observations	40320	40320	40320	40306	40320	40320	9105	9103	2613	2686
Airport FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.91	0.96	0.94	0.94	0.93	0.79	0.94	0.96	0.87	0.84
Y-Mean	89.99	12.46	8.21	2.30	8.71	5,474.43	8.81	6.23	17.82	9.45
Pr > F PE Ownership=PE Control	.9	.87	.87	.01	.42	.73	.48	.38	.06	.17
Pr > F NonPE Private Ownership=NonPE Private Control	.01	.16	.68	.37	.83	.04	.44	.94	0	.70

Airport Privatization: Majority vs. Minority Stake

Dependent Variable:	Passengers per Flight	Log(Number of Passengers)	Log(Number of Flights)	Log(Number of Routes)	Number of Airlines	Airline HHI	Log(Int'l Fee)	Log(Domestic Fee)	Log(Op. Net Income)	Log(OpEx per 1000 psg)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1(PE-Sale-Majority)	15.83***	0.47***	0.36***	0.42***	2.91***	-135.45	0.27**	0.30***	0.78**	0.25
	(2.78)	(0.08)	(0.08)	(0.07)	(1.11)	(272.72)	(0.11)	(0.11)	(0.37)	(0.25)
1(PE-Sale-Minority)	9.25**	0.58***	0.55***	0.39***	7.89***	585.91***	1.13***	0.97***	2.77**	1.95*
	(4.06)	(0.10)	(0.09)	(0.08)	(1.59)	(147.24)	(0.24)	(0.21)	(1.37)	(1.16)
1(PE-Concession-Majority)	4.23	0.21**	0.19**	-0.07	0.66	88.13	0.13**	0.18***	-0.28*	-0.15
	(4.85)	(0.10)	(0.09)	(0.09)	(0.97)	(298.35)	(0.06)	(0.07)	(0.16)	(0.12)
1(PE-Concession-Minority)	6.21	0.24	0.27	0.11	1.47	164.45	0.38***	0.47**	0.00	0.00
	(5.77)	(0.23)	(0.23)	(0.17)	(1.91)	(406.11)	(0.11)	(0.21)	(.)	(.)
1(NonPE-Sale-Majority)	4.38**	0.19***	0.16***	0.14***	2.81***	351.57***	0.17**	0.21**	0.30*	-0.17
	(1.76)	(0.04)	(0.04)	(0.04)	(0.50)	(123.00)	(0.08)	(0.10)	(0.17)	(0.14)
1(NonPE-Sale-Minority)	14.08**	0.52***	0.42***	0.40***	3.93	-107.06	0.60**	0.53**	2.37**	1.58*
	(5.72)	(0.17)	(0.16)	(0.13)	(2.46)	(395.97)	(0.27)	(0.23)	(1.13)	(0.88)
1(NonPE-Concession-Majority)	-16.49***	-0.40**	-0.26	-0.29**	-1.20	161.22	-0.51	-0.40*	-2.75**	-1.80**
	(6.02)	(0.18)	(0.16)	(0.13)	(2.57)	(418.02)	(0.27)	(0.23)	(1.15)	(0.91)
1(NonPE-Concession-Minority)	-13.20*	-0.15	-0.12	0.03	-5.55*	589.17	0.00	0.00	0.00	0.00
	(6.90)	(0.33)	(0.34)	(0.24)	(2.96)	(847.10)	(.)	(.)	(.)	(.)
Observations	40320	40320	40320	40306	40320	40320	9105	9103	2613	2686
Airport FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.91	0.96	0.94	0.94	0.93	0.79	0.95	0.96	0.87	0.84
Y-Mean	89.99	12.46	8.21	2.30	8.71	5,474.43	8.81	6.23	17.82	9.45

Main Outcomes of Airport Privatization Using the Stacked Regression

Dependent Variable:	Passengers per Flight (1)	Log(Number of Passengers) (2)	Log(Number of Flights) (3)	Log(Number of Routes) (4)	Number of Airlines (5)	Airline HHI (6)	Log(Int'l Fee) (7)	Log(Domestic Fee) (8)	Log(Op. Net Income) (9)	Log(OpEx per 1000 psg) (10)
1(Privatization by PE)	17.99***	0.61***	0.49***	0.37**	1.28	288.66	-0.02**	-0.05***	2.38**	1.66**
	(5.55)	(0.18)	(0.17)	(0.16)	(1.13)	(353.12)	(0.01)	(0.01)	(1.02)	(0.71)
1(Privatization by Non-PE)	1.37***	0.17***	0.18***	0.13***	3.11***	-248.87***	0.29***	0.31***	0.23***	-0.28***
	(0.32)	(0.01)	(0.01)	(0.01)	(0.11)	(22.94)	(0.02)	(0.02)	(0.03)	(0.03)
1(Post-Priv Non-PE to PE)	8.87***	0.17**	0.13*	0.19***	-0.32	156.69	0.17**	0.19**	0.09	0.04
	(2.94)	(0.07)	(0.07)	(0.07)	(0.78)	(223.41)	(0.07)	(0.08)	(0.13)	(0.10)
1(Post-Priv PE to Non-PE)	2.73	0.02	-0.00	0.23***	1.07	-465.53	0.04	0.06	-1.71***	-1.35*
	(7.45)	(0.17)	(0.16)	(0.09)	(1.59)	(392.71)	(0.06)	(0.05)	(0.54)	(0.72)
Observations	827727	827727	827727	827727	827727	827727	184378	184336	47731	49024
Airport-Group FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-Group FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.91	0.96	0.94	0.94	0.93	0.79	0.95	0.96	0.89	0.92
Y-Mean	89.37	12.42	8.18	2.27	8.42	5,514.71	8.80	6.20	17.98	9.51
Pr > F Priv PE=Priv Non-PE	0	.01	.06	.15	.11	.13	0	0	.04	.01
Pr > F Non-PE to PE=PE to Non-PE	.44	.4	.47	.68	.43	.17	.18	.18	0	.06

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Main Outcomes of Airport Privatization Using the Callaway Sant'Anna Estimator

Dependent Variable:	Passengers per Flight	Log(Number of Passengers)	Log(Number of Flights)	Log(Number of Routes)	Number of Airlines	Airline HHI	Log(Int'l Fee)	Log(Domestic Fee)	Log(Op. Net Income)	Log(OpEx per 1000 psg)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
𝟙(PE)	7.71*	0.23***	0.18**	0.16**	-0.09	315.17*	0.11	0.11	-0.12	-0.22
	(4.41)	(0.09)	(0.08)	(0.07)	(0.61)	(177.38)	(0.08)	(0.08)	(0.19)	(0.27)
Observations	40622	40622	40622	40622	40622	40622	9239	9237	2641	2714
Airport FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Main Outcomes of Airport Privatization Using the Matched Sample

Dependent Variable:	Passengers per Flight	Log(Number of Passengers)	Log(Number of Flights)	Log(Number of Routes)	Number of Airlines	Airline HHI	Log(Int'l Fee)	Log(Domestic Fee)	Log(Op. Net Income)	Log(OpEx per 1000 psg)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1(Privatization by PE)	16.45**	0.62***	0.54**	0.45***	0.97	300.57	-0.01	-0.10***	2.39*	1.73**
	(7.22)	(0.24)	(0.22)	(0.17)	(1.24)	(455.34)	(0.02)	(0.03)	(1.28)	(0.85)
1(Privatization by Non-PE)	-0.86	0.14***	0.18***	0.14***	2.40**	-206.24*	0.20***	0.26***	0.13	-0.24
	(1.60)	(0.04)	(0.04)	(0.03)	(0.50)	(112.63)	(0.06)	(0.08)	(0.21)	(0.19)
1(Post-Priv Non-PE to PE)	5.19**	0.06	0.05	0.10*	-0.73	202.14	0.18**	0.17**	0.36	0.26
	(2.88)	(0.06)	(0.07)	(0.05)	(0.79)	(242.53)	(0.08)	(0.08)	(0.22)	(0.17)
1(Post-Priv PE to Non-PE)	4.16	-0.75	-0.76	-0.13***	-2.59	-1,027.44	-0.08***	-0.16***	0.00	0.00
	(13.43)	(1.07)	(0.95)	(0.05)	(1.82)	(1,872.89)	(0.03)	(0.05)	(.)	(.)
Observations	12520	12520	12520	12518	12520	12520	3429	3429	1094	1127
Airport FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.90	0.96	0.94	0.93	0.94	0.80	0.90	0.95	0.90	0.87
Y-Mean	101.80	12.99	8.54	2.61	11.62	4,761.46	8.98	6.32	17.41	9.64
Pr > F Priv PE=Priv Non-PE	.02	.05	.1	.07	.28	.28	0	0	.09	.03
Pr > F Non-PE to PE=PE to Non-PE	.94	.45	.4	0	.35	.51	0	0	.11	.12

Main Outcomes of Airport Privatization Using the Overlapping Sample

Dependent Variable:	Passengers per Flight (1)	# of Passengers (2)	# of Flights (3)	# of Routes (4)	# of Airlines (5)	Airline HHI (6)	Int'l Fee (7)	Domestic Fee (8)
$\mathbb{1}$(Privatization by PE)	20.51***	0.06***	-0.04***	6.93***	1.26***	153.09***	0.07***	0.06***
	(0.48)	(0.01)	(0.01)	(0.45)	(0.18)	(44.64)	(0.01)	(0.02)
$\mathbb{1}$(Privatization by Non-PE)	-2.31*	-0.01	-0.01	-1.61*	0.03	1.16	0.72***	0.51***
	(1.18)	(0.03)	(0.02)	(0.88)	(0.61)	(63.97)	(0.21)	(0.16)
$\mathbb{1}$(Post-Priv Non-PE to PE)	2.76***	0.03***	0.02**	12.77***	1.52	-76.29	0.06	-0.32
	(0.56)	(0.01)	(0.01)	(0.70)	(3.38)	(157.41)	(0.04)	(0.26)
$\mathbb{1}$(Post-Priv PE to Non-PE)	-16.97***	-0.08***	0.08*	0.34	-0.48	-150.11	0.01	0.09***
	(3.47)	(0.01)	(0.04)	(0.73)	(0.60)	(91.88)	(0.01)	(0.02)
Observations	2763	2763	2763	2763	2763	2763	2763	2763
Airport FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.99	1.00	1.00	0.99	0.99	0.99	0.96	0.97
Y-Mean	136.07	14.45	9.59	3.41	19.70	3,195.96	8.82	6.39
Pr > F Priv PE=Priv Non-PE	0	.02	.2	0	.05	.04	0	.01
Pr > F Non-PE to PE=PE to Non-PE	0	0	.22	0	.56	.68	.18	.12

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Main Outcomes of Airport Privatization Without The Biggest Deal

Dependent Variable:	Passengers per Flight (1)	Log(Number of Passengers) (2)	Log(Number of Flights) (3)	Log(Number of Routes) (4)	Number of Airlines (5)	Airline HHI (6)	Log(Int'l Fee) (7)	Log(Domestic Fee) (8)	Log(Op. Net Income) (9)	Log(OpEx per 1000 psg) (10)
1(Privatization by PE)	18.91***	0.64***	0.50***	0.36**	0.86	396.35	0.00	0.00	0.79**	0.35**
	(5.90)	(0.19)	(0.18)	(0.17)	(1.15)	(364.53)	(.)	(.)	(0.36)	(0.16)
1(Privatization by Non-PE)	1.59	0.17***	0.18***	0.14***	3.08***	-248.80**	0.28***	0.32***	0.30***	-0.24**
	(1.46)	(0.04)	(0.04)	(0.03)	(0.48)	(101.50)	(0.08)	(0.08)	(0.10)	(0.11)
1(Post-Priv Non-PE to PE)	8.04***	0.16**	0.12*	0.18***	-0.33	148.60	0.17**	0.18**	0.06	-0.03
	(2.95)	(0.08)	(0.07)	(0.07)	(0.80)	(231.37)	(0.07)	(0.09)	(0.09)	(0.05)
1(Post-Priv PE to Non-PE)	-5.33	0.00	0.02	0.14	-1.28*	-227.74	0.03	0.05	-0.31***	-0.82***
	(6.10)	(0.23)	(0.22)	(0.10)	(0.67)	(508.90)	(0.07)	(0.05)	(0.10)	(0.06)
Observations	40272	40272	40272	40258	40272	40272	9089	9087	2570	2643
Airport FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.91	0.96	0.94	0.94	0.93	0.79	0.95	0.96	0.91	0.92
Y-Mean	89.91	12.45	8.20	2.29	8.65	5,480.95	8.80	6.23	17.97	9.55
Pr > F Priv Non-PE=Priv PE	0	.02	.08	.21	.07	.09	0	0	.18	0
Pr > F Non-PE to PE=PE to Non-PE	.05	.52	.65	.78	.36	.5	.19	.18	0	0

▸ Back

Main Outcomes of Airport Privatization With Region Fixed Effect

Dependent Variable:	Passengers per Flight	Log(Number of Passengers)	Log(Number of Flights)	Log(Number of Routes)	Number of Airlines	Airline HHI	Log(Int'l Fee)	Log(Domestic Fee)	Log(Op. Net Income)	Log(OpEx per 1000 psg)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
$\mathbb{1}$(Privatization by PE)	17.87***	0.61***	0.48***	0.36**	1.24	290.93	-0.02**	-0.05***	0.73**	0.34**
	(5.56)	(0.18)	(0.17)	(0.16)	(1.13)	(353.24)	(0.01)	(0.01)	(0.35)	(0.15)
$\mathbb{1}$(Privatization by Non-PE)	1.61	0.17***	0.18***	0.14***	3.05***	-246.40**	0.28***	0.31***	0.30***	-0.25**
	(1.45)	(0.04)	(0.04)	(0.03)	(0.48)	(101.12)	(0.08)	(0.08)	(0.10)	(0.11)
$\mathbb{1}$(Post-Priv Non-PE to PE)	8.72***	0.16**	0.12*	0.17***	-0.32	154.59	0.17***	0.18**	0.03	-0.01
	(2.94)	(0.07)	(0.07)	(0.07)	(0.78)	(225.11)	(0.07)	(0.08)	(0.08)	(0.04)
$\mathbb{1}$(Post-Priv PE to Non-PE)	2.69	0.02	-0.01	0.23**	1.07	-464.44	0.03	0.05	-0.54***	-0.42**
	(7.40)	(0.17)	(0.16)	(0.09)	(1.59)	(393.36)	(0.07)	(0.05)	(0.15)	(0.23)
Observations	40357	40357	40357	40343	40357	40357	9125	9123	2613	2686
Airport FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.91	0.96	0.94	0.94	0.93	0.79	0.95	0.96	0.91	0.92
Y-Mean	90.00	12.46	8.21	2.30	8.70	5,474.07	8.80	6.24	17.98	9.54
Pr > F Priv Non-PE=Priv PE	0	.02	.08	.17	.14	.14	0	0	.23	0
Pr > F Non-PE to PE=PE to Non-PE	.45	.42	.46	.62	.43	.17	.19	.18	0	.08

▶ Back

Addressing Selection with Auction data

Panel A: Auction Outcome Summary			
	Total	PE Wins	Non-PE Wins
Both PE & Non-PE Bid	70	54	16
Only PE Bid	20	20	0
Only Non-PE Bid	40	0	40

Addressing Selection with Auction data

Dependent Variable:	Passengers per Flight	Log(Number of Passengers)	Log(Number of Flights)	Log(Number of Routes)	Number of Airlines	Airline HHI	Log(Int'l Fee)	Log(Domestic Fee)	Log(Op. Net Income)	Log(OpEx per 1000 psg)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
$\mathbb{1}$(Privatization by PE)	17.10*	0.77***	0.66***	0.57***	1.87	466.02	-0.02*	-0.02	0.96***	0.14
	(8.90)	(0.26)	(0.23)	(0.19)	(1.47)	(379.41)	(0.01)	(0.01)	(0.23)	(0.19)
$\mathbb{1}$(Privatization by Non-PE)	-4.45	0.13*	0.20**	0.11	5.00***	-399.23	0.16***	0.05	0.28	-0.19
	(5.11)	(0.07)	(0.09)	(0.09)	(1.67)	(424.47)	(0.02)	(0.06)	(0.23)	(0.20)
$\mathbb{1}$(Post-Priv Non-PE to PE)	12.47***	0.20***	0.13	0.18**	0.65	263.36	0.16	0.08	0.25***	-0.04
	(2.76)	(0.09)	(0.11)	(0.09)	(1.62)	(399.12)	(0.15)	(0.12)	(0.07)	(0.05)
$\mathbb{1}$(Post-Priv PE to Non-PE)	2.01	0.20	0.13	0.13	-2.00***	552.25***	0.22***	0.17***	-0.06	-0.60***
	(4.49)	(0.13)	(0.12)	(0.10)	(0.74)	(198.49)	(0.02)	(0.02)	(0.17)	(0.10)
Observations	35041	35041	35041	35029	35041	35041	7427	7425	2170	2220
Airport FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.91	0.96	0.94	0.94	0.93	0.78	0.96	0.96	0.92	0.90
Y-Mean	85.97	12.32	8.13	2.21	7.99	5,696.54	8.74	6.24	17.95	9.41
Pr > F Priv Non-PE=Priv PE	.04	.02	.06	.03	.16	.13	0	.24	.02	.19
Pr > F Non-PE to PE=PE to Non-PE	.05	1	.97	.73	.14	.51	.71	.47	.03	0

Panel B: Regression Results in Sample of Airports where both PE and non-PE Firms Bid

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Traffic

Dependent Variable:	Passengers per Flight		Log(Number of Passengers)		Log(Number of Flights)	
	(1)	(2)	(3)	(4)	(5)	(6)
𝟙(PE)	12.26***		0.25***		0.15**	
	(2.67)		(0.08)		(0.07)	
𝟙(Foreign Private)	0.94		0.29***		0.33***	
	(3.07)		(0.07)		(0.07)	
𝟙(Domestic Private)	0.77		-0.02		-0.03	
	(2.21)		(0.05)		(0.05)	
𝟙(Partially Gov't Owned Private)	-0.18		0.07		0.05	
	(4.35)		(0.09)		(0.08)	
𝟙(Privatization by PE)		17.91***		0.56***		0.42**
		(5.90)		(0.18)		(0.17)
𝟙(Privatization by Non-PE)		1.26		0.13***		0.12***
		(1.55)		(0.04)		(0.03)
𝟙(Post-Priv Non-PE to PE)		9.79***		0.11		0.02
		(3.01)		(0.08)		(0.06)
𝟙(Post-Priv PE to Non-PE)		2.08		-0.06		-0.07
		(6.96)		(0.16)		(0.15)
Observations	30308	30308	30308	30308	30308	30308
Airport FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.89	0.89	0.95	0.95	0.93	0.93
Y-Mean	96.92	96.92	12.49	12.49	8.09	8.09
Pr > F Row 1 = Row 2	0	.01	.68	.02	.05	.08
Pr > F Row 3 = Row 4	.84	.31	.39	.35	.39	.57

Routes & Airlines

Dependent Variable:	Number of Int'l Routes		Number of Airlines			
			Total	Total	Low Cost Carriers	Low Cost Carriers
	(1)	(2)	(3)	(4)	(5)	(6)
$\mathbb{1}$(PE)	9.89***		0.15		0.70**	
	(2.89)		(0.54)		(0.29)	
$\mathbb{1}$(Foreign Private)	12.64***		6.27***		1.53***	
	(3.09)		(1.18)		(0.33)	
$\mathbb{1}$(Domestic Private)	1.80		1.17**		0.74***	
	(1.36)		(0.53)		(0.20)	
$\mathbb{1}$(Partially Gov't Owned Private)	0.98		1.16		0.82**	
	(3.64)		(1.21)		(0.41)	
$\mathbb{1}$(Privatization by PE)		9.86*		-0.10		1.59**
		(5.05)		(1.13)		(0.76)
$\mathbb{1}$(Privatization by Non-PE)		5.07***		2.67***		1.03***
		(1.07)		(0.45)		(0.15)
$\mathbb{1}$(Post-Priv Non-PE to PE)		6.84**		-0.46		0.12
		(3.12)		(0.60)		(0.26)
$\mathbb{1}$(Post-Priv PE to Non-PE)		10.55		1.34		-0.06
		(8.95)		(1.53)		(0.92)
Observations	30308	30308	30308	30308	30308	30308
Airport FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.91	0.92	0.93	0.93	0.71	0.71
Y-Mean	11.98	11.98	8.55	8.55	1.03	1.03
Pr > F Row 1 = Row 2	.52	.35	0	.02	.06	.47
Pr > F Row 3 = Row 4	.84	.7	1	.27	.86	.85

Event Studies: Number of Airlines
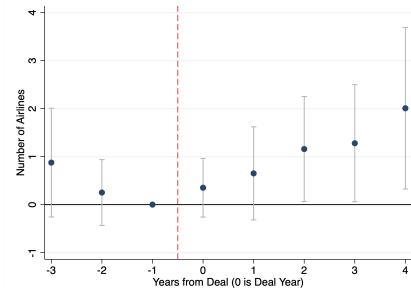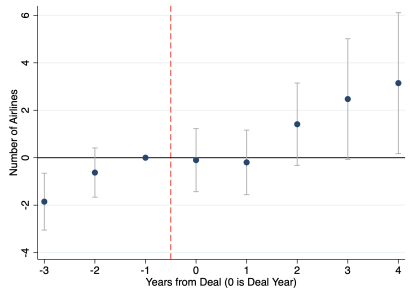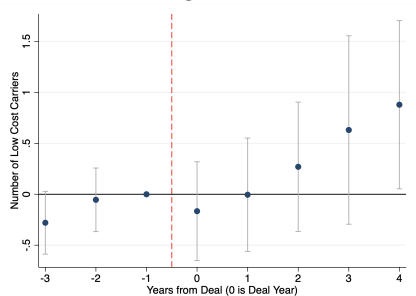
Event Studies: Number of Low Cost Carriers
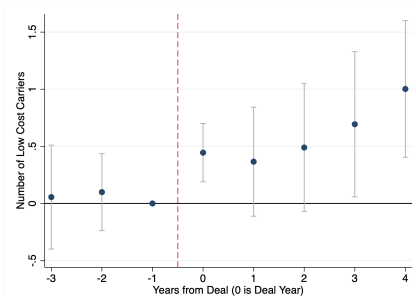
Punctuality, Safety & Awards

Dependent Variable:	Flight Cancellation Rate		On-Time Departure Rate		$\mathbb{1}$(Award)	
	(1)	(2)	(3)	(4)	(5)	(6)
$\mathbb{1}$(PE)	-0.62***		0.37		0.09**	
	(0.17)		(0.57)		(0.04)	
$\mathbb{1}$(Foreign Private)	-1.46		-2.72		0.02	
	(0.89)		(2.29)		(0.02)	
$\mathbb{1}$(Domestic Private)	-0.27		-0.04		-0.02*	
	(0.28)		(0.69)		(0.01)	
$\mathbb{1}$(Partially Gov't Owned Private)	1.54*		-1.45		-0.01	
	(0.90)		(2.88)		(0.02)	
$\mathbb{1}$(Privatization by PE)		-1.29***		-0.24		0.12
		(0.05)		(1.33)		(0.11)
$\mathbb{1}$(Privatization by Non-PE)		-0.33		0.06		-0.01
		(0.23)		(0.35)		(0.01)
$\mathbb{1}$(Post-Priv Non-PE to PE)		-0.49***		0.48		0.08**
		(0.15)		(0.67)		(0.04)
$\mathbb{1}$(Post-Priv PE to Non-PE)		0.72***		1.13		0.04
		(0.17)		(1.88)		(0.07)
Observations	3390	3390	3713	3713	17702	17702
Airport FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.82	0.82	0.86	0.86	0.50	0.50
Y-Mean	1.48	1.48	78.15	78.15	0.03	0.03
Pr > F Row 1 = Row 2	.35	0	.19	.82	.09	.28
Pr > F Row 3 = Row 4	.05	0	.63	.75	.79	.57

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Event Studies: Flight Cancellation Rate

PE

Foreign Private
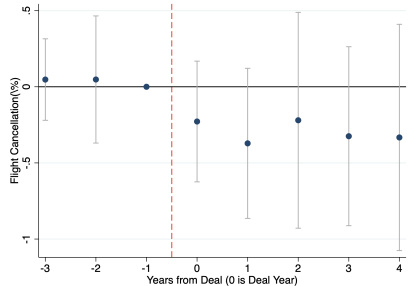
▸ Back

| Dependent Variable:	Op. Net Income		Op. Revenue		Aero Revenue		Non-Aero Revenue		Op. Expenditure		Employees per 1000 psg	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$\mathbb{1}$(PE)	0.23*		0.21*		0.24*		0.24*		0.16**		-0.02	
	(0.14)		(0.12)		(0.13)		(0.13)		(0.07)		(0.02)	
$\mathbb{1}$(Foreign Private)	0.48***		0.22**		0.38***		0.06		-0.19		-0.10***	
	(0.13)		(0.09)		(0.10)		(0.10)		(0.15)		(0.03)	
$\mathbb{1}$(Domestic Private)	-0.28		-0.42		-0.33		-0.53		-0.15		-0.09	
	(0.21)		(0.27)		(0.27)		(0.33)		(0.23)		(0.11)	
$\mathbb{1}$(Partially Gov't Owned Private)	-0.76***		-0.52***		-0.56***		-0.44***		0.04		0.08	
	(0.14)		(0.10)		(0.10)		(0.11)		(0.18)		(0.05)	
$\mathbb{1}$(Privatization by PE)		0.66*		0.66**		0.63*		0.78**		0.40**		0.01
		(0.34)		(0.32)		(0.33)		(0.33)		(0.16)		(0.07)
$\mathbb{1}$(Privatization by Non-PE)		0.27**		0.05		0.17*		-0.07		-0.17		-0.07**
		(0.11)		(0.08)		(0.09)		(0.08)		(0.11)		(0.04)
$\mathbb{1}$(Post-Priv Non-PE to PE)		0.04		0.01		0.07		0.01		0.03		-0.02
		(0.08)		(0.07)		(0.10)		(0.08)		(0.04)		(0.02)
$\mathbb{1}$(Post-Priv PE to Non-PE)		-0.56***		-0.49***		-0.60***		-0.36*		-0.31		-0.05
		(0.15)		(0.09)		(0.07)		(0.21)		(0.24)		(0.04)
Observations	1585	1585	1673	1673	1694	1694	1675	1675	1646	1646	1709	1709
Airport FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.92	0.92	0.94	0.94	0.89	0.89	0.92	0.92	0.92	0.92	0.88	0.88
Y-Mean	18.03	18.03	18.92	18.92	18.25	18.25	18.13	18.13	9.80	9.80	0.18	0.18
Pr > F Row 1 = Row 2	.14	.27	.93	.07	.33	.18	.21	.01	.04	0	.03	.32
Pr > F Row 3 = Row 4	.06	0	.74	0	.43	0	.77	.1	.49	.13	.13	.33

▸ Back
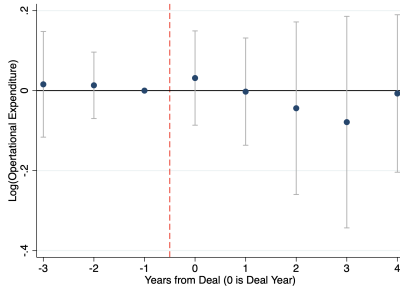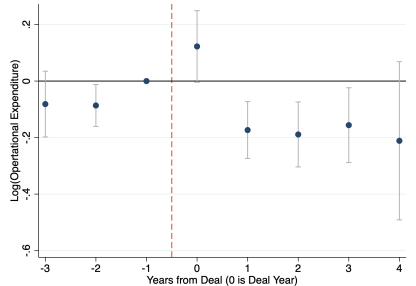
Event Studies: Operational Revenue
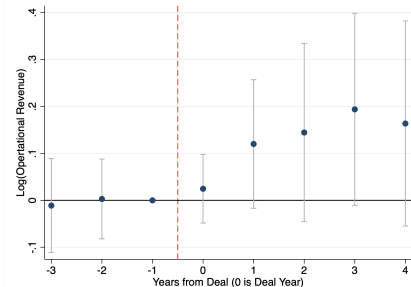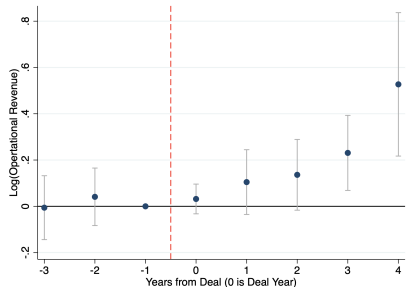
Event Studies: Operational Expenditure

PE

Foreign Private

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Effects on Aircraft and Airport Capacity

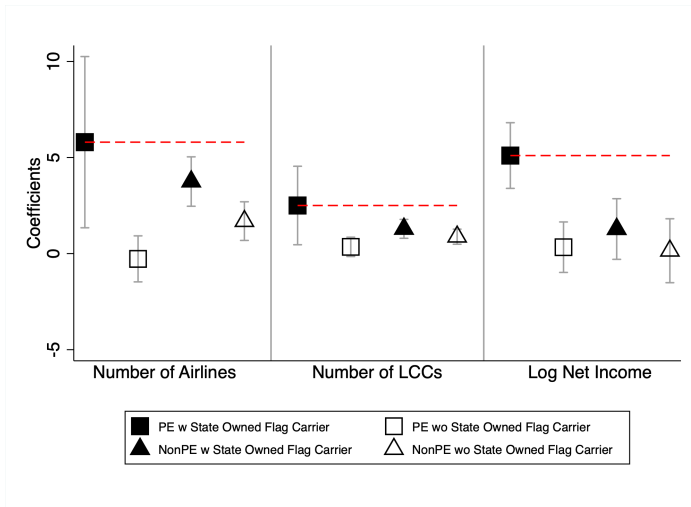| Dependent Variable:	Share Aircrafts Jets (vs. Small/Regional)		Capex			
			Log(Terminal Size)		Number of Runways	
	(1)	(2)	(3)	(4)	(5)	(6)
$\mathbb{1}$(PE)	0.10***		0.16**		0.02	
	(0.02)		(0.07)		(0.03)	
$\mathbb{1}$(Foreign Private)	0.02		-0.04		0.01	
	(0.03)		(0.06)		(0.02)	
$\mathbb{1}$(Domestic Private)	-0.01		0.03		-0.01	
	(0.02)		(0.04)		(0.03)	
$\mathbb{1}$(Partially Gov't Owned Private)	-0.01		0.06		-0.01	
	(0.03)		(0.06)		(0.02)	
$\mathbb{1}$(Privatization by PE)		0.14**		0.08*		0.13*
		(0.06)		(0.04)		(0.08)
$\mathbb{1}$(Privatization by Non-PE)		0.00		0.04*		-0.01
		(0.02)		(0.02)		(0.01)
$\mathbb{1}$(Post-Priv Non-PE to PE)		0.08***		0.19**		-0.03
		(0.02)		(0.09)		(0.02)
$\mathbb{1}$(Post-Priv PE to Non-PE)		0.06*		0.04		-0.06
		(0.03)		(0.07)		(0.04)
Observations	30308	30308	4264	4264	4331	4331
Airport FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.83	0.83	0.97	0.97	0.96	0.96
Y-Mean	0.44	0.44	9.16	9.16	1.30	1.30
Pr > F Row 1 = Row 2	.03	.04	.05	.42	.86	.1
Pr > F Row 3 = Row 4	.92	.55	.77	.2	.96	.47

Does Local Governance Matter?

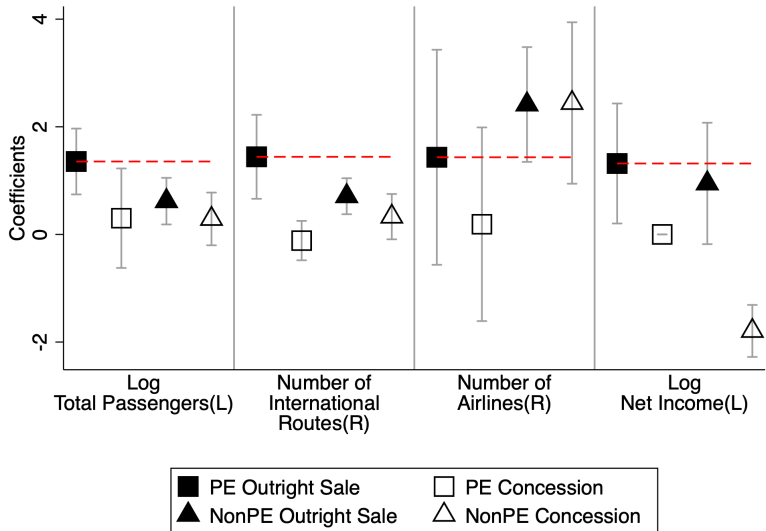## Governance Predictors of Private Ownership Type
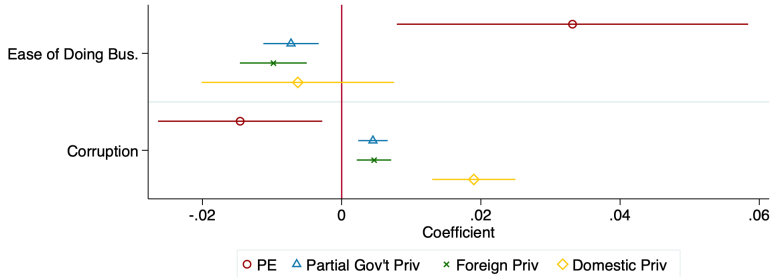
- ▶ PE targets countries where easier to do business and less corruption
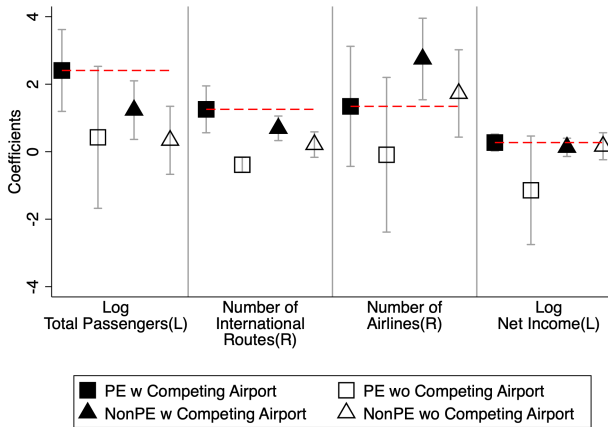- ▶ Domestic private more likely to target higher corruption countries

Pre-Existing Relationships: The Role of State-Owned Flag Carriers

Contract Form: Duration of Lease Matters

Figure axes:
- Y-axis: Coefficients (scale from -2 to 4)
- X-axis categories: Log Total Passengers(L), Number of International Routes(R), Number of Airlines(R), Log Net Income(L)

Legend:
- ■ PE Outright Sale
- □ PE Concession
- ▲ NonPE Outright Sale
- △ NonPE Concession

Competition: Airport Nearby?

Legend:
- ■ PE w Competing Airport
- □ PE wo Competing Airport
- ▲ NonPE w Competing Airport
- △ NonPE wo Competing Airport

x-axis labels: Log Total Passengers(L), Number of International Routes(R), Number of Airlines(R), Log Net Income(L)

y-axis: Coefficients

No effects on competing airport

What about the U.S.? And Terminals?

▶ U.S. has not privatized airports because of unique, strong federal government incentivizes to remain publicly owned and operated

▶ But PE playing active role in terminal-specific development/operation

    ▶ Appears likely PE's footprint in U.S. airport sector will expand

"There's an extraordinary amount of investment needed in airports... That's probably going to be the top prospect for investing in infrastructure over the near term."
– *Carlyle's then-president Glenn Youngkin, 2017*

▶ Here we focus on overall airport ownership

    ▶ Most relevant to control rights and residual claim to profits

    ▶ Do not observe terminal-level performance